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MATERIAL SAFETY DATA SHEET

Starbar® QuikStrike® Fly Bait

Manufacturer: Wellmark International

Address: 1501 East Woodfield Road, Suite 200W, Schaumburg, IL 60173

Emergency Phone: 1-888-914-2082

Transportation Emergency Phone: CHEMTREC: 1-800-424-9300

1. CHEMICAL PRODUCT INFORMATION

Product Name: Starbar® QuikStrike® Fly Bait

Chemical Name/Synonym: Dinotefuran; Guanidine, N-methyl-N'-nitro-N''-[(tetrahydro-3-furanyl)methyl]

Chemical Family: Neonicotinoid

Formula: $C7\ H_{14}\ N4\ O3$

EPA Registration No.: 2724-812

RF Number: RF2172

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component (chemical, common name)	CAS Number	Weight	Tolerance
Dinotefuran;	165252-70-0	0.5%	Not est.
(Z)-9-Tricosene	27519-02-4	0.04%	Not est.
Other ingredients (non-hazardous)		99.46%	

3. HAZARD INFORMATION

PRECAUTIONARY STATEMENTS:

KEEP OUT OF THE REACH OF CHILDREN

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION:

AVOID CONTACT WITH SKIN, EYES, OR CLOTHING. WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING AND BEFORE EATING, DRINKING, CHEWING GUM, OR USING TOBACCO.

PRIMARY ROUTE OF ENTRY **Dermal/Eye:** Yes **Oral:** Yes **Inhalation:** No

ACUTE TOXICITY

Oral: No specific hazard identified.

Dermal: No specific hazard identified.

Inhalation: No specific hazard identified.

OTHER TOXICOLOGICAL INFORMATION

Skin Irritation: May cause brief and/or minor irritation.

Eye Irritation: May cause minimal irritation.

Sensitizer: Not a skin sensitizer.

4. FIRST AID MEASURES

If in eyes:
- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, and then continue rinsing eyes.
- Call a poison control center or doctor for treatment advice.

If on Skin:
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

If swallowed:
- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to by a poison control center or doctor.
- Do not give anything to an unconscious person.

Note to Physician: There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition.

5. FIRE FIGHTING MEASURES

NFPA Rating: **Health: 1** **Fire: 1** **Reactivity: 0**

Flammability Class: Solid

Flash Point: N/A

Explosive Limits (% of Volume): N/A

Extinguishing Media: Water fog, carbon dioxide, foam, dry chemical.

Special Protective Equipment: Fire fighters should wear full protective clothing including self-contained breathing apparatus.

Fire Fighting Procedures: Products of combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Minimize the amount of water used for fire fighting. Do not allow fire fighting water to escape into waterways or sewers.

Combustion Products: Incomplete combustion can produce carbon monoxide. Normal combustion forms carbon dioxide, water vapor and may produce oxides of nitrogen.

Unusual Fire/Explosion Hazards: None known.

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken: Do not allow spilled material to enter waterways or sewers.

Absorbents: None needed due to product form. Scoop up material and dispose of all wastes according to applicable regulations.

Incompatibles: None known.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if bait gets inside. Wash thoroughly and put on clean clothing. Do not use, pour, spill or store near heat or open flame.

Storage: Store in a cool, well-ventilated place away from sources of heat and direct sunlight. Keep container tightly closed. Keep only in original container. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROL/PERSONAL MEASURES

Exposure Limits: None.

Ventilation: Use in a well ventilated area.

Personal Protective Equipment: Avoid contact with skin, eyes or clothing. Handlers and applicators should wear appropriate protective equipment including, at a minimum, long pants, long-sleeved shirt and shoes plus socks and chemical resistant gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Solid granules

Boiling Point: N/A

Melting Point: N/A

Vapor Pressure (mm Hg): N/A

Vapor Density (Air = 1): N/A

Specific Gravity: 0.93 g/ml

Bulk Density: N/A

Solubility: N/A

Evaporation Rate: N/A

pH: 6.15

10. STABILITY AND REACTIVITY

Stability: Stable.

Reactivity: Not reactive.

Incompatibility w/ Other Materials: Reactive metals and strong oxidizers.

Decomposition Products: Not known.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Acute oral toxicity (rat): LD50 >5000 mg/kg
Acute dermal toxicity: LD50 >5050 mg/kg
Acute inhalation toxicity: LC50 >4090 mg/m^3
Skin irritation: Slightly irritating
Eye irritation: Mildly irritating
Dermal Sensitization: Not a sensitizer

SUBCHRONIC/CHRONIC TOXICITY [Specific to Active Ingredient(s)]

Dinotefuran technical was tested in 13-week dietary toxicity studies in rats, mice and dogs. In the rat study, a NOEL of 500 ppm was established, based on reduced body weight gain in females and adrenal cortical vacuolation in males and a NOAEL of 5,000 ppm based on marked growth retardation at 25,000 ppm (adrenal cortical vacuolation not adverse). A NOEL of 25,000 ppm was established in the mouse study based on reduced body weight gain at 50,000 ppm. In the dog 13-week dietary study, a NOEL of 8,000 ppm was established based on reduced body weight gain. No target organs were identified in subchronic inhalation or dermal toxicity studies in rats.

Dinotefuran technical was tested in lifetime studies with rats and mice and a one-year study with dogs. In common with the subchronic studies in these species, no specific target organs could be identified. In the 78-week mouse study a NOAEL of 2500 ppm was established, based on decreased weight gain and a decrease in circulating platelet counts. In the 104-week rat study a NOAEL of 2000 ppm was established, based on a decrease in weight gain in females. There were no treatment-related effects in rats or mice on survival or the nature and incidence of neoplastic and adverse non-neoplastic histomorphological findings in either species at any dose level. In the 52-week dog study, a NOAEL of 16000 ppm was established based on decreased weight gain in both sexes and decreased food consumption in females. This product is not listed as a carcinogen by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the Occupational Safety and Health Administration (OSHA) or ACGIH.

DEVELOPMENTAL/REPRODUCTIVE TOXICITY [Specific to Active Ingredient(s)]

Dinotefuran technical was tested in a two-generation rat reproduction study at doses of 0, 300, 1000, 3000 and 10000 ppm. The NOAEL for systemic toxicity in parental animals was 3000 ppm based on decreased body weight gain and food consumption and decreased spleen and thyroid weights at the highest dose level evaluated (10000 ppm). The NOAEL for reproductive effects was 10000 ppm. The NOAEL for effects on the offspring was 3000 ppm based on reduced preweaning weight gain at 10000 ppm. In a developmental toxicity study of Dinotefuran technical in rats, the maternal NOAEL was 300 mg/kg/day based on reduced weight gain, food consumption and water intake at 1000 mg/kg/day. Dinotefuran technical did not produce developmental effects in rats at doses up to 1000 mg/kg/day (the highest does tested). In a study with rabbits, the maternal NOAEL was 52 mg/kg/day based on reduced weight gain, food consumption and water intake and clinical signs noted at 300 mg/kg/day and pathology findings in the liver and stomach at 125 mg/kg/day and higher. The developmental NOEL was 300 mg/kg/day.

NEUROTOXICITY [Specific to Active Ingredient(s)]

Dinotefuran did not produce any functional or histomorphological evidence of neurotoxicity in acute (gavage) and 13-week (dietary) neurotoxicity studies in rats. The NOEL for neurotoxicity in the acute study was 1,500 mg/kg, the highest dose level administered. The NOEL for neurotoxicity in the 13-week dietary study was 50,000 ppm. The NOEL for all effects in this study was 5,000 ppm based on reduced body weight gain and food consumption.

MUTAGENICITY [Specific to Active Ingredient(s)]

Dinotefuran technical was negative in the following *in vitro* assays: Ames Assay, mouse lymphoma (L5178Y), mammalian cytogenetics (CHL/IU) or DNA Repair. Dinotefuran technical was negative in the hazard.

12. ECOLOGICAL INFORMATION

ACUTE AND LONG-TERM TOXICITY TO FISH AND INVERTEBRATES:

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or public waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

ECOLOGICAL TOXICITY [Specific to Active Ingredient(s)]

Dinotefuran Technical is practically non-toxic to moderately toxic to avian species.
Test results include:

Oral LD_{50} quail: greater than 2000 mg/kg;
Dietary LC_{50} Mallard duck: greater than 997.9 ppm;
Dietary LC_{50} quail: greater than 1301 ppm;
Reproduction quail: NOEL = 5000 ppm;
Reproduction Mallard duck: NOEL = 2000 ppm.

Dinotefuran Technical is practically nontoxic to fish and practically nontoxic to highly toxic to aquatic invertebrate species. Test results include:

LC_{50} (96 hr) Bluegill Sunfish: greater than 100 mg/l;
LC_{50} (96 hr) Rainbow Trout: greater than 100 mg/l;
LC_{50} (96 hr) Common Carp: greater than 100 mg/l;
LC_{50} (96 hr) Sheepshead Minnow: greater than 109 mg/l;
NOEC (early life stage) Rainbow Trout: greater than 10 mg/l;
EC_{50} (48 hr) Daphnia magna: greater than 1000 mg/l;
NOEC (lifecycle) Daphnia magna: greater than 10 mg/l;
LC_{50} (96 hr) Mysid Shrimp: 0.79 mg/l;
EC_{50} (96 hr) Oyster Shell Deposition: greater than 141 mg/l.

OTHER ENVIRONMENTAL INFORMATION:
Dinotefuran Technical is highly toxic to bees. The acute oral and contact LD_{50} in bees were 0.056 µg/bee and 0.022 ug/bee, respectively.

13. DISPOSAL CONSIDERATIONS

Wastes resulting from use of this product should be disposed of in accordance with all federal, state and local requirements. For additional regulatory information, see section 15 of this document.

14. TRANSPORT INFORMATION

DOT49CFR Description: Not Regulated.

Freight Classification: Insecticides NOI NMFC 102120 CL. 60.

15. REGULATORY INFORMATION

CERCLA (Superfund): Not Regulated.

RCRA: Not Regulated.

SARA 311/312 HAZARD CATEGORIES

Immediate Health: Yes

Delayed Health: Yes

Fire: No

Sudden Pressure: No

Reactivity: No

The information presented herein, while not guaranteed, was prepared by technically knowledgeable personnel and to the best of our knowledge is true and accurate. It is not intended to be all inclusive and the manner and conditions of use and handling may involve other or additional considerations.